

REMARKS

In view of the above amendments and the following remarks, reconsideration and further examination of the amended application are respectfully requested.

Claims 1 - 7 are currently pending. Claims 1-2 have been canceled without prejudice or disclaimer to the material contained therein. Claim 3 has been slightly modified to further describe the current invention.

With regard to the amendment and following remarks, the Applicant respectfully request reconsideration of the reasons for rejection.

§103(a) Rejection

Claims 1, 3, 4, and 6 were rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art on pages 1 and 2, paragraphs 2-4, of the instant application, in view of Abu et al. (Japanese Patent 58-178812).

JP 58-17881 teaches a valve seat with an arcuate face. However, the arcuate face of JP 58-17881 is concaved (i.e., inwardly curved; Fig. 2 most clearly shows this element). The concave arcuate face of the JP reference functions by sealing along a surface area of the valve ball approximated by two parallel planes slicing through the sphere of the valve ball and running through the left most and right most points of the valve seat.

The current invention uses a convex (i.e., outwardly curved) arcuate face. The sealing area on the surface of the valve ball approaches that of a circular line instead of a section of a sphere. This allows for a higher sealing force per contact area (i.e., sealing pressure) of the valve ball against the valve seat. Since the reference, either alone or in combination with the other references, does not teach a convex arcuate valve seat, a *prima facie* case of obviousness according to MPEP §2142 is not established, as the reference does not teach or suggest all of the claim limitations of the current invention. The Applicant respectfully requests reconsideration and withdrawal of the §103(a) rejection.

Claims 2 and 5 were rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art on pages 1 and 2, paragraphs 2-4 of the instant application, in view of Abu et al., and further in view of Taniguchi et al. (U.S. Patent 5,185,923). Claim 7 was rejected under 35 U.S.C. 103(a) as being obvious over applicant's admitted prior art on pages 1 and 2, paragraphs 2-4 of the instant application, in view of Abu et al. Claim 2 has been canceled so the rejection is now moot. Claims 5 and 7 depend upon independent claim 3. Allowance of

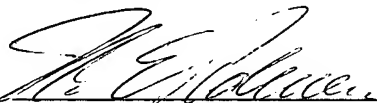
independent claim 3 would also result in the allowance of claims 5 and 7. Reconsideration and withdrawal of the §103(a) rejections are requested for at least the reasons previously given.

In the Examiner's Response to Arguments, item 6, page 6, the Examiner states that the figures in the Japanese Patent of Abu et al. clearly show a ball sealing itself against an arcuate face that is well known for these types of devices. The Applicant wishes to respectfully state that it is not well known in the art to use a convex arcuate valve seat. At least one reason for this traversal is the lack of teaching of a convex arcuate valve seat by any of the cited references. The Applicant respectfully requests for the rejection to be withdrawn.

In view of the above amendments and remarks, reconsideration of the rejections contained in the Office Action of February 3, 2005, is respectfully requested. Since claims 4-7 depend upon independent claim 3, allowance of independent claim 3 would result in allowance of claims 4-7. The current amendments are believed to place the application in a condition for immediate allowance. However, if the Examiner has any additional suggestions or considerations to place the application in a condition for immediate allowance, he should contact the Applicant's representative at the phone number listed below.

Respectfully submitted,

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April 20, 2005